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# Induced magnetostriction and electron-phonon interaction in crystals of the complex fluorides KR3F10 (R=Ho, Dy)

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## Abstract

The longitudinal magnetostriction of single crystal KHo3F10 and KDy3F10 has been measured at 4.2 K in an external magnetic field of up to 40 kOe along the principal crystallographic directions of the cubic lattice. The strains induced by the magnetic field in the crystal, which contains three magnetically nonequivalent rare-earth sublattices, are calculated using an approximation of the crystal field and assuming predominance of a one-particle mechanism for the magnetoelastic coupling. An analysis of the anisotropy and field dependences of the magnetostrictions, supplemented by piezospectroscopic studies of crystalline KY3F10:Er, yields a full set of parameters for the Hamiltonian of the linear electron-strain interaction for the rare-earth ions in the cubic fluorides KR3F10.